

1. A composition comprising bipotent hepatic progenitors which express at least one intercellular adhesion molecule (ICAM)-antigen and do not express major histocompatibility complex (MHC) class Ia antigen, in which the bipotent hepatic progenitors have a capacity to differentiate.

2. The composition of claim 1 in which the hepatic progenitors express at least one MHC class Ib antigen.

B² \ 3. The composition of claim 2 in which the MHC class Ib antigen is weakly expressed.

10 4. The composition of claim 1 in which the ICAM antigen is ICAM-1.

5. The composition of claim 1 in which the hepatic progenitors have a sidescatter in flow cytometry which is less than the sidescatter of mature parenchymal cells.

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c3) 6. The composition of claim 1 in which the hepatic progenitors have a
sidescatter in flow cytometry which is between the sidescatter of non-parenchymal cells
and the sidescatter of mature parenchymal cells.

7. The composition of claim 1 in which the hepatic progenitors are capable of dividing and giving rise to progeny.

8. The composition of claim 7 in which the hepatic progenitors exhibit a
20 capacity for clonal growth.

9. The composition of claim 8 in which the clonal growth requires extracellular matrix.

10. The composition of claim 7 in which the progeny grow in piled-up clusters.

11. The composition of claim 7 in which the progeny express alpha-fetoprotein, albumin, CK19, or combinations thereof.

12. The composition of claim 7 in which the progeny are hepatocytes or biliary cells.

5 13. The composition of claim 12 in which the hepatocytes or biliary cells additionally express a cell adhesion molecule that can be used for selection or identification of a particular subpopulation.

sub 94 14. A composition comprising hepatic progenitors, their progeny, or a combination thereof in which the hepatic progenitors and their progeny:

10 (a) weakly express at least one MHC class Ib antigen,

(b) exhibit a higher side scatter in flow cytometry than non-parenchymal cells, and

(c) express alpha-fetoprotein, albumin, CK19, or combinations thereof.

15 15. The composition of claim 14 in which the hepatic progenitors, their progeny, or a combination thereof are derived from endoderm or bone marrow.

16. The composition of claim 15 in which the endoderm is selected from liver, pancreas, lung, gut, thyroid, gonad, or combinations thereof.

20 17. The composition of claim 15 in which the progenitors express ICAM antigen.

18. The composition of claim 17 in which the ICAM antigen is ICAM-1.

19. The composition of claim 15 in which the progenitors do not express MHC class Ia.

sub (5) 20. ~~The composition of claim 15 in which the progenitors express at least one MHC class Ib antigen.~~

5 21. A method of obtaining a mixture of vertebrate cells enriched in hepatic progenitors comprising:

(a) obtaining a cell suspension comprising vertebrate liver cells and

(b) removing from the cell suspension those cells that express at least one MHC class Ia antigen to provide a mixture of cells enriched in hepatic progenitors.

10 22. A method of obtaining a mixture of vertebrate cells enriched in progenitors comprising:

(a) obtaining a cell suspension of vertebrate cells and

15 (b) sequentially in either order, or substantially simultaneously, removing from the cell suspension those cells that express at least one MHC class Ia antigen and isolating from the cell suspension those cells that are positive for an ICAM antigen, to provide a mixture of cells enriched in progenitors.

23. A method for identification of progenitor cells, comprising:

(a) providing a cell suspension suspected of including progenitor cells;
and

20 (b) identifying cells which express ICAM antigen and do not express MHC class Ia antigen.

24. A method of obtaining a mixture of vertebrate cells enriched in hepatic progenitors comprising:

- (a) providing a vertebrate embryonic stem cell,
- (b) expanding the embryonic stem cell to give embryonic stem cell progeny, and
- (c) isolating those embryonic stem cell progeny which express at least one ICAM antigen and do not express MHC class Ia antigen.

25. A method of treating a liver disorder or dysfunction with liver progenitors in a subject in need thereof comprising: administering to the subject an effective amount of cells enriched in human liver progenitors, their progeny, or a combination thereof, in a pharmaceutically acceptable carrier, in which the human liver progenitors express an ICAM antigen and do not express MHC class Ia antigen.

26. A method of treating a genetic disorder in an individual in need thereof comprising administering to an individual in need thereof an effective amount of a bipotent hepatic progenitor harboring a gene which corrects a genetic disorder.

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